The Interspecies Newsletter

Fall 2001

Published Quarterly by Interspecies Communication Inc.

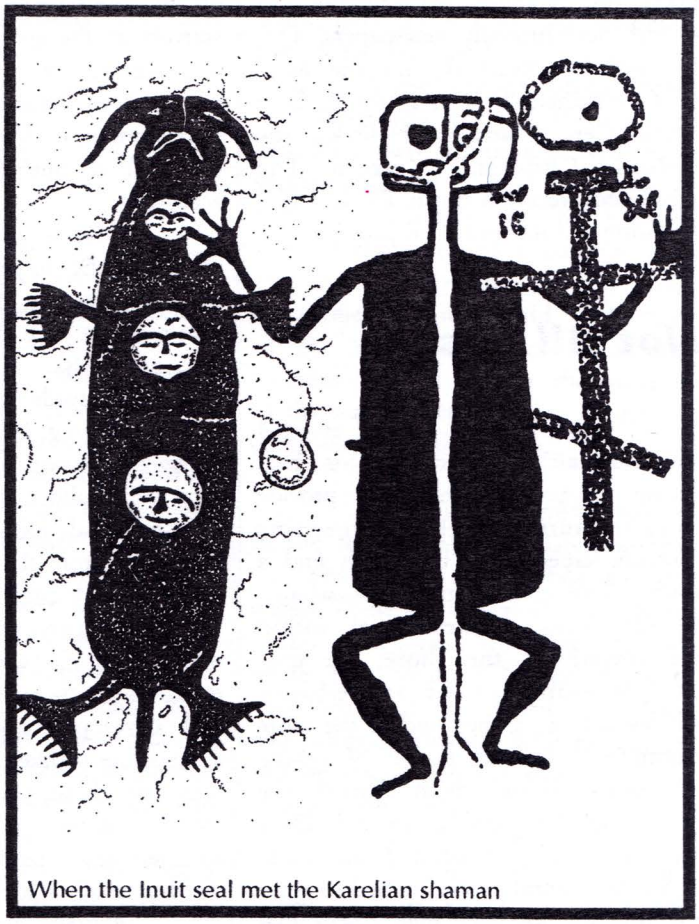
Beluga Project Update

Interspecies Inc. sent two representatives to Russia this past July, Jim Nollman from Interspecies USA and Rauno Lauhakangas from Helsinki Finland. We spent much of our time in Russia living on a sailboat, conducting acoustic research in the midst of the White Sea beluga herds. This is Interspecies Inc's fourth year producing this project of coexistence with these whales.

Sponsors this summer included The Slifka Coexistence Foundation, the ISAR Russian American Exchange, ICERC Japan, Casio, Fujifilm-Finland, Emagic, Lind Electronics, Kon Tiki Tours, Lukomorie Tours, Finnair, Griffin Technology, The Moscow Shirshov Oceanographic Institute, and several private donors. Within Russia, we worked under the auspices of the Karelian Research Institute, of the Russian Academy of sciences.

Our work at Interspecies Inc. revolves around two objectives of protection and communication. Whale protection has been the primary focus of Rauno's activities, with myself serving as his main assistant. We are two activists working hard to get the Russian government and the European Community to institute meaningful measures to ensure the long term preservation of these last beluga whales in all of Europe. Interspecies Inc. promotes a benign activism espousing the fundamental idea that ecological sanity truly takes hold in this human overpopulated world only when local people act to protect nature at the place they live. Our methods do not include protest, but rather education, the human perception of nature, and economic opportunity.

On the White Sea, we are essentially forging an interspecies relationship based on coexistence between local whales and their human neighbors by designing and implementing a self-reliant eco-tour economy for an economically bleak area of Arctic Russia. In effect, we guide the locals toward a healthy economy that can *only* prosper within a healthy ecosystem. We are also giving considerable attention to the central government in Moscow, demonstrating the futility of dictating an extractive environmental policy from afar.



When the Inuit seal met the Karelian shaman

Tour buses

Our fundamental strategy is developing faster than expected. In fact Rauno and I traveled both to and from the White Sea this summer on Finnish tour buses filled with Scandinavians excited to see the first whales in their lives. Rauno has been the prime mover of tourist development, often dipping into his own personal funds to successfully instigate the first collaboration between a Helsinki Tour Company and a Russian travel agency. In total, this international venture filled ten full buses over a twelve week period this summer.

In the furtherance of beluga preservation, I published a story in the summer issue of the *FinnAir* in-flight magazine about the whale's plight and our own

efforts to insure protection, illustrated by several dazzling color photos taken by our project photographer Hernan Patino. Publishing with Finnair means that up to 75% of all the people flying in or out or within Finland this summer (and to a lesser extent Saint Petersburg) will learn something essential about the White Sea beluga whales and our project.

Other accounts by Rauno or I have appeared in two Finnish Nature magazines, an archeology magazine, and several Scandinavian newspapers. Our Interspecies project is also the focus of a permanent exhibit at the Finland Arctic Center, and at Heureka, the Helsinki Children's Museum. The project has received much TV and film attention throughout Europe.

Not All Rosy

Both Rauno and I engaged the Russian bureaucracy this past spring, to propose that they provide infrastructure for this burgeoning tourism, especially a bike path and a tourist campground near the whales. Because these whales travel within ten meters of the shore, we urge the development of shore-based whalewatching, as opposed to the more common worldwide model of relying on motor boats which disturb the whales on their feeding ground. Once the path and campground are built, and local naturalists are trained to serve the tourists, we have high hopes that the model will serve as a prototype for a less harassing form of whalewatching at other locations. Unfortunately, neither the path nor the campground are yet ready for primetime, and so we both are committed to return to the White Sea next summer for one more intense go-round promoting this ecological and economic process for whale preservation.

The combination of my magazine story, the eco-tour success, and three different TV Russian newscasts about our project has also caught the full attention of the Finnish government. Rauno is currently involved in encouraging meetings with the Finnish Foreign Ministry, exploring the possibility of receiving three years of foreign aid for Karelia earmarked for this project. The first year will focus on the establishment of shore-based whalewatching and petroglyph viewing. The second year will focus on scientific communication research with the whales. The third year will concentrate on bringing scientists, media, and whale activists to the site, perhaps producing a conference to further consolidate our vision among researchers and entrepreneurs. We will learn later this fall if our proposal has been accepted.

Despite all these significant advances, the forecast is not all rosy on the protection front. The fisheries ministry in the nearest large city of Archangelsk, a military center, is currently considering opening up this same migrating beluga population to a regulated hunt and then selling the meat and blubber to Japan. Fortunately, this proposal has met with intense opposition from the Karelian Republic's government located in Petrozavodsk.

Rauno and I have been working closely with several Karelian ministers for three years now to nurture and develop ecosystem preservation for northern Karelia. At this juncture, most of these officials seem to be staunch allies of the whales, with sufficient resources and clout to squelch the hunting initiative.

Actually, the growing opposition within Karelia itself to whale hunting for export purposes strongly suggests that our long term strategy is starting to have an effect. In support of living whales, local TV media has beamed two stories about these vibrant whales and our attempts to communicate with them across northwestern Russia this past year.

As every observer of industrial whaling knows, such affronts to living whales must be taken seriously, and confronted with expediency and commitment.

Solar Systems

The second part of our project focuses on understanding the nature of beluga calls, specifically the species potential for language. In particular, we hope to learn from the belugas what human beings need to do to develop relations with them. This aspect is under my direction, with Rauno serving as my primary assistant.

In search of suitable methods and tools to comprehend beluga calls, we have begun working closely with the Karelian Research Institute and the Northern Waters Institute, both based in Petrozavodsk as well as Moscow's Shirshov Institute.

I expended considerable effort and funds this past winter to assemble a powerful and unique portable computer system for recording and analyzing beluga sounds onsite, as well as to transmit modulated sounds back to the whales in real time.

This system works entirely off solar panels which gave us nearly 24 hours of up-time when the midnight sun was showing. At one point, I even programmed a virtual keyboard to play back the whales own calls, but assigned frequencies mapped to a chromatic scale. In such a manner, I was able to create melodies based entirely on whale calls.

Nootka Petroglyph

Radical Departures

Onsite, we worked daily with Moscow acoustician, Roman Belikov who helped us analyze the whale calls. We may be on the verge of a breakthrough, having isolated a few distinct calls that apparently demonstrate that these whales first echolocate objects and then vocalize the actual echoes to other whales. The major point here is that these belugas appear to be "speaking" echoed information in a social context.

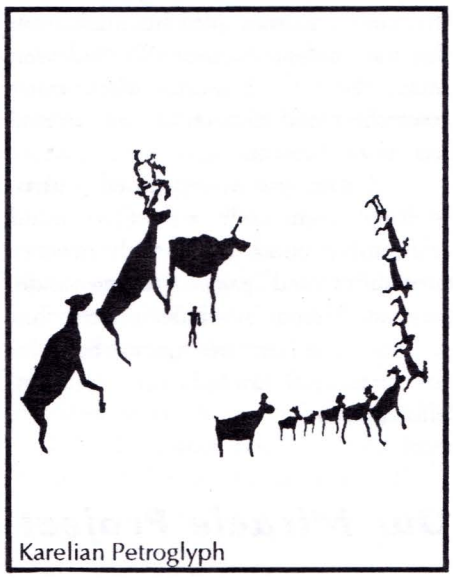
This focus offers a radical departure from past whale communication research, which attempts to unravel a whale language by analyzing calls for phonemes, words. and sentence structure. We now believe that this species (and sperm whales and bottlenose dolphins as well) communicate three-dimensional holograms through what has long been known as a "creaky door call".

In one instance, I recorded calls I believed were echolocation clicks. But enlarging the graph to a millisecond view showed that the individual clicks were actually social calls comprised of high frequency renderings of clicks. This suggests that other whales may be interpreting them.

If our hypothesis, is true, then it helps explain why the three whale species that seem to use echolocation in a social context all have such large brains. It would take far more brainpower to communicate three dimensional moving images than words and sentences.

Helping me test this difficult hypothesis is Liz von Muggenthaler, a bio-acoustician with the Fauna Acoustics Institute in North Carolina. Liz has much experience testing animal calls for lingual content. She agrees with my basic premise, and is now working to devise graphs to display these echoed communications.

One intriguing idea focuses on illuminating the resonances (or pulses) that comprise the harmonic structure of any call as a potential



Karelian Petroglyph

"carrier" of "holosonic" information. We are consulting with programmers of digital audio software and sonar technology who have specific ideas on how to construct computer graphs to best display the content of the whale calls. For one example, by graphing these rhythmical resonances in three dimensions (relying on Fast Fourier Transforms) we may one day surprise ourselves by seeing a picture of a herring on screen. The more I listen to our recordings, and the more I re-read years of speculation about how cetaceans communicate, I believe this basic premise makes good sense.

Network

Just as Rauno is not a tourism entrepreneur, so I am not an acoustician. I focus so much attention on recording these White Sea beluga whales with the goal of simply handing the tapes over to acousticians and biologists. Ultimately, I work to engage the scientific community to test the profound thesis that these whales possess a true language.

To do this, I have devoted ample resources to gathering together the portable computer technology to make the best possible whale recordings for others to analyze. Not incidentally, I am expending much time and effort to networking. This involves introducing members of the acoustics community with software programmers, whale biologists, activists, media producers, and communication theorists with the objective of all together developing a more intellectually respectful relationship with whales—not just beluga whales, but all cetaceans. Not just cetaceans, but all animals.

Onsite in the White Sea, Rauno and I anchored our rented sailboat in the middle of about a hundred beluga whales for about a week. Three times during that period, TV media from Russia and Scandinavia simply showed up to document our endeavor clearly demonstrating that the word is out about our work with the whales.

Ironically, despite my abiding interest in digital audio technology, the primary image I conveyed to the Media has me playing Tibetan bells on the deck of the boat as a means to nurture a close-up relationship with these beluga whales.

Friends and Enemies

I have long been interested in developing specific procedures and techniques that will entice curious whales to draw close and interact with human beings in a creative manner. On the first day anchored at beluga Cape, the whales surrounded our boat for seven hours. In a career devoted to interspecies communication with cetaceans, this event one of the most active and intense whale relationships I have ever developed.

But a different story developed during the days that followed, teaching us that these whales were as wary of us as they were curious. They would swim close for ten minutes and then scoot away as if never quite able to relax in our presence. We also began to recognize that their response of swimming close was at least partially based on a "scouting" behavior that placed individuals in harms way as a

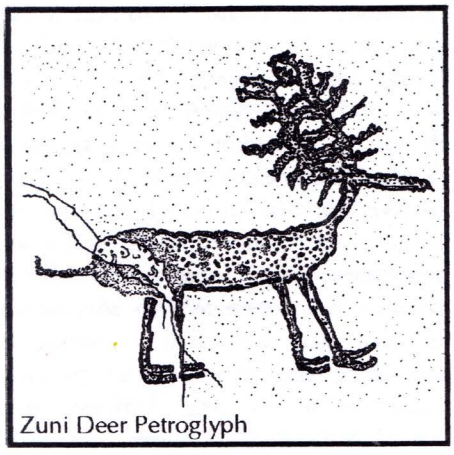
courageous method to test anything new within their environment.

Their interest dwindled a bit each day until we believed that the herd had made a conscious decision to keep their distance. One afternoon a Russian whale researcher visited us who offered a plausible explanation. He explained that this whale population had been hunted by men standing on the decks of boats very similar to ours for years if not centuries. In fact, these particular whales had been hunted by men on boats at another White Sea location as recently as 1985.

The researcher also told us that the director of his institute was a member of a Northern European whale commission. He had recently attended a meeting where the Norwegian member admitted that his own country's whalers were killing belugas (an activity deemed illegal both by CITES and the International Whaling Commission) in the Kara Sea just north of the White Sea. Our visitor suspected that the White Sea whales certainly intermingle with their northern kin. We concluded that such whaling has to impact our own attempt to develop an acoustic relationship with whales initiated from the platform of a boat.

But a few days later, our project photographer Hernan Patino put on a wet suit to dive and photograph these whales. Their response was very different than it had been to my music-making. The whales swam right up to Hernan, some animals bending their necks to stare into his mask from less than a foot distance. We had seen much the same response when other researchers and film crews had entered the whale's realm.

The lesson we learned is that, in the future, our efforts to build relationship must begin with in-water procedures and games. As an aside, one of Hernan's whale photos has recently won the prestigious FujiFilm international award for nature photography



Zuni Deer Petroglyph

Our Miracle Project

Working in Russia is a constant challenge. The economy displays advanced signs of collapse; the roads, the buildings, the plumbing, the stores, even the human spirit seems in perpetual disrepair. Sometimes it seemed a miracle that we were able to accomplish anything either ecologically or technologically in that place.

If the generous funding we have already received for this project continues for another year, both Rauno and I are committed to return next summer. Clearly, we need to do more work to bring these vibrant whales to the attention of the Russians as well as to Northern Europeans. I plan to continue working with both Russian and American acoustic institutes this winter. I will also develop new acoustics software to record the full spectrum of beluga calls, up to 180 kilohertz. Rauno will continue to promote eco-tourism on both sides of the Finnish/Russian border.

Toxic Orcas

Excerpted from the Anchorage Daily News (submitted by Bob Wood)

A killer whale that stranded and died last summer outside Cordova was carrying high levels of industrial poisons in its body, offering yet more evidence that pollutants produced thousands of miles away continue to accumulate at the top of Alaska's marine food chain.

These chemicals may be another factor pushing a genetically unique family of Prince William Sound whales closer to extinction, according to local whale biologists and environmentalists. "It's more of the same bad news," said biologist Craig Matkin, of the North Gulf Oceanic Society and the region's leading killer whale researcher.

The contaminants found in the dead whale were PCBs, or polychlorinated biphenyls, and the pesticide DDT, chemicals banned or restricted in the United States for decades but still produced in some Asian and Third World countries. Transported across the globe on air and ocean currents, the contaminants infiltrated Alaska's food chain and have been documented at elevated levels in a wide range of animals for years—sea otters, seals, walruses, peregrine falcons, northern fur seals and bald eagles. As the chemicals move up the food chain, they concentrate and build in fatty tissues.

As a result, among 77 killer whales tested in the Gulf of Alaska between 1994 and 1999, the highest levels appeared among animals that eat only marine mammals, the type known as transients. Among 10 killer whales sampled in 1999 and 2000, several transients appear to be among the most contaminated marine mammals ever measured. The whale, part of the group known as AT1, died last July in Hartney Bay. He was a closely studied harbor seal predator nicknamed Eyak. He had concentrated PCBs at about 370 parts per million and DDT at about 470 parts per million in its tissues, according to chemist Gina Ylitalo, of the National Marine Fisheries Service's contaminants lab in Seattle.

Another transient male from the Gulf of Alaska had the highest levels ever measured in Alaska waters at about 651 parts per million PCBs

and about 1,003 parts per million DDTs, according to Matkin's report. That whale, unrelated to the Sound's AT1 group, had a dorsal fin that was bent over, a sign of ailing health among killer whales.

By comparison, the U.S. Food and Drug Administration standard for PCBs in fish for human consumption is 2 parts per million and the limit for DDT is 5 parts per million. The results were released this spring as part of an annual report by Matkin and four other authors on the status of the Sound's killer whales for the state-federal Exxon Valdez Oil Spill Trustee Council.

Similar levels found recently in killer whales in the Pacific Northwest prompted leading biologist Peter Ross and four others to write in Marine Pollution Bulletin that "killer whales in British Columbia can now be considered among the most contaminated cetaceans in the world." Scientists don't know how the substances affect the long-lived, slow-reproducing killer whales. Whether such elevated levels contributed directly to the death of the 5-ton, 24-foot whale isn't known, Matkin cautioned.

Comparable contaminant loads have been linked to several other marine mammals including reproductive failures in beluga whales of the industrialized St. Lawrence River estuary, die-offs of striped dolphins in the Mediterranean Sea and European harbor seals. "It's clearly in the range of potential health risks," Matkin said. "It's scary stuff."

The death of Eyak furthered the decline of the AT1 group, an extended family of whales that lost 11 of 22 members in the three years after the Exxon Valdez oil spill. These whales have not produced any offspring since before the spill. "The upshot is that they're disappearing so fast that I don't know what we can do for them," Matkin said. "We've been debating about whether to try to get them listed under the Endangered Species Act."

Another transient whale was found dead June 25 near Cordova, an area historically used by Eyak and other AT1 whales, especially a male known as Eccles. Eyak and Eccles, named for mountains near Cordova, hunted seals together and were well known to people in the Sound.

The overall situation for three separate types of killer whales in the eastern North Pacific Ocean is complex, with some pods increasing and others in decline. For instance, while one pod of Alaskan orcas has declined from 36 to 25 between 1988 and 2000 another pod increased from 81 to 110 during the same period.

The Cat's Purr:
a healing mechanism?

Abstract by Elizabeth von Muggenthaler (Fauna Communications Research Institute, PO Box 1126, Hillsborough, NC 27278, www.animalvoice.com)

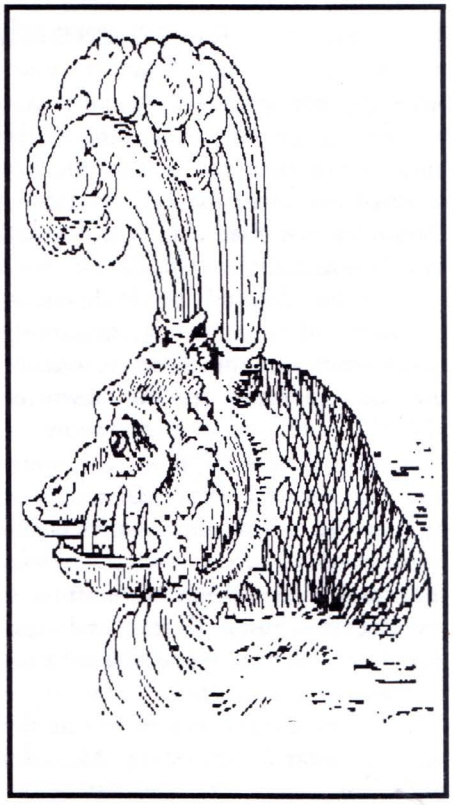
Current hypotheses suggest that the feline's purr indicates contentment. However cats purr when they are severely injured and threatened. Forty-four felids were recorded including cheetah, ocelot, puma, domestic cat, and serval. A Sony Digital Audio Recorder and Statham Radio microphones recorded the purrs. Fast Fourier Transforms and spectrographs were performed using National Instrument's Polynesia software. An accelerometer was used to measure domestic cat purrs. Every felid in the study generated strong frequencies between 25–150 Hertz.

Purr frequencies correspond well to vibrational/electrical frequencies used in treatment for bone growth/fractures, pain, edema, muscle growth/strain, tendon strength/strain, joint flexibility, dyspnea, and wounds. Domestic cats, servals, ocelots and pumas produce fundamental, dominant, or strong frequencies at exactly 25 Hz and 50 Hz, the two low frequencies that best promote bone growth/fracture healing [Chen et al. Zhonghua Wai Ke Za Zhi. 32, 217-219 (1994).] These four species have a strong harmonic exactly at, or within 2 Hz of 100 Hz, a frequency used therapeutically for pain, edema, wounds, and dyspnea.

An internal healing mechanism would be advantageous, increasing recovery time and keeping muscles and bones strong when sedentary.

Turtle News

In 1999, Hong Kong officials freed a green sea turtle from the floating temple of Tin Hau, the Goddess of the Sea. Leung Yau, who ran the temple, said the turtle had magical powers. "Before a typhoon or bad weather, it would flip its flipper furiously and make us all wet, as if warning us not to go to sea," said Leung. Tens of thousands flocked to the temple to pat the turtle for good luck.



Russian Journal

It's hard to get anything done in Russia, mostly because we are strangers and social relations among strangers seems based on fear and humiliation as much as on common courtesy. As one of my Finnish colleague's explained: "You can't blame these Russian men for having no sense of the sublime. They lived for 75 years under communism."

Clouds are different in the arctic. They don't change shape so constantly, but seem to float in a bluer sky like flat-bottomed boats viewed from the floor of a crystal clear ocean.

Traveling with the first group of Finnish tourists on a journey to Solovetsky to watch whales. Overwhelmingly women of forty years and older, they are a hearty, good-natured group demanding little attention from our guides despite enduring a twelve hour bus trip on potholed roads.

We stop for the night in Belomorsk, a town built by the Soviets where the Stalin Canal meets the White Sea. Our Russian guide tells me this is the best hotel in town although, honestly, it looks as if not a drop of paint, not a fixed light bulb, not a tightened water pipe has occurred here since the 1917 revolution. "Well, it's not that old," she answers me, "it was built in 1982."

Yet despite the foul odors, the layers of dust, and a dangerously rickety staircase, this hotel is one of the few buildings in this town of 100,000 with internal plumbing, a veritable oasis of pipes and running water in a sea of outhouses, rubble in the unpaved streets, and an architecture of logs that when viewed across the canal looks like a scene from a seventeenth-century Dutch landscape. Clearly, the current rulers of Russia see no future for Belomorsk.

Just as the bus arrives at the hotel, a brand new shiny Mercedes pulls up beside us, depositing an

Karelian Runner Petroglyph

unsmiling man in sharply creased trousers, a too-tight polyester leisure shirt and hair plugs dotting his scalp. His Mafia accoutrements seem a bit overblown, as if he's taking fashion cues from some old John Travolta comedy. He does his best to stand unobtrusively at the back of the unlit reception waiting patiently for the middle-aged ladies in sneakers and backpacks to be checked in, at which point he will no doubt hold out his hand to the receptionist to receive his cut.

The ladies sneak glances at him and smile shyly. He stares at his manicured fingernails and evades their eyes. I think of asking him to carry my bags upstairs, but decide that no one in attendance would appreciate my idiotic attempt at humor.

The next morning, we arrive fifteen minutes early at the ferry landing to be told that it will depart two hours behind schedule in order to accomodate some "boss" who is to arrive on the late train from Moscow. Upon learning this, the Russian tourists vent their anger to the one lonely attendant, literally screaming at this tidy woman in her bouffant hair and flaring pink and gray disco dress. Apparently she has made the decision on her own, because as the tourists wander off in disgust, an older man drives up in an official vehicle. I hear him berating her, watch him through the little window waving his fists. She breaks down in tears. And when an arbitrary number of the tourists wander back to the terminal, the ferry abruptly leaves the dock. It makes me wonder about the fate of those people who took her departure time at face value. The next ferry won't leave until tomorrow...

...We join the Finnish tourists to take a boat across 5 miles of dead calm sea to Zaitsky Island. Up from the dock is a log chapel with a classic onion dome, constructed in 1702 for a visit by Peter the Great. Despite its age, the logs seem in good shape, and I imagine the building still there in three hundred more years.

Just beyond the church, a path winds into the center of the island past huge red crystalline boulders, mountain ash reduced to sub-shrubs in this offshore Arctic climate, and wildflowers including campanula, dianthus, and Linea borealis.

The path leads to the first of three labyrinths reputed to be constructed before 5000 BC by Finnish tribes. The second one in line is the largest prehistoric labyrinth in the world. The rocks upon which the labyrinth edges are constructed are of such great age that they are completely covered by a growth of thick heather which itself grows on the remains of thousands of generations of decomposed lichen.

Help Us Please

Help us keep afloat. Please. Our Russian Project went over budget this summer, mostly from extra equipment expenses and baggage air charges. But now Interspecies owns a portable computer for recording whale calls. But the fact remains, that our lack of operating funds is causing somewhat of a crunch for us right now to make it through the Fall.

Is there anyone able to donate $2000? Or maybe you know someone who would respond to our whale work with a contribution. Our email is beluga@rockisland.com

Book Reviews

Eye of the Whale

By Dick Russell, Simon and Schuster, 2001.

A large book, an epic book which seems appropriate for describing the life and times of a creature so large and so epic as the gray whale. The scope of the story finally brings us as close as a human being can possibly come to writing the biography of another species. The descriptions are impeccably researched, while the mood is sometimes profoundly tragic and yet eminently hopeful at the same moment. The Eye of the Whale is nature writing at its best, and a must read for all whale lovers.

...The question of what drives whales either toward us or away from us, of what they hear as we approach them with our mechanical toys, leads to another question: the means by which whales might talk to one another about the various situations they face. We know that all whales 'speak" acoustically, but how they do it is still largely a mystery. (pg 210)

...A whale called Elvis, because it's stripes looked like it was wearing white pants, turned out to be a female which surprised everybody. There was also Apache, whose pigment was reminiscent of war paint.

...Under the circling TV helicopters, the crew members waved their arms and their harpoons and their paddles in the air. It had been a ten minute long public death. Eric Johnson, dressed in an Oakland raiders jacket and wool cap with a whale on it, used a cell phone to alert Neah bay of the success. Many of the tribe had already been watching the live TV broadcast. Over breakfast at the Makah Maiden café, people roared and applauded at the first harpoon strike..."It was easy," the Makah crew member Darrell Markishtum would tell the press. "The whale gave up its life to us freely." (pg 276)

...I sent David Gude a transcript of the conversation I'd taped with Jim Nollman. David had been a musician and sound engineer for a record company and long been fascinated by the acoustics of whales...he wrote me "Very mysterious. They may hear or visualize by electrical stimuli. Maybe they see auras." (pg 219)

Strange Sea

By Suzy McKee Charnas. Available as a Publish-on-Demand ebook at http://www.hidden-knowledge.com

Approach this book with an open mind and be rewarded with a provocative exploration of the human/whale interface. The author, an award-winning fiction writer, takes us on a journey through channeling, trance states, past lives and personal soul-searching to discover why she feels a profound connection with whales. It's a risky book, because Charnas dares to explore and articulate ideas many of us have had about cetacean souls, intelligence, sexuality, linguistics. This is not fiction, but it reads with the pace of a mystery story; Charnas is no fuzzy bunny New Ager, but a woman in search of wisdom, skeptical, but with an overwhelming need to know. What she finds may surprise.

... Of course the whales had souls. You had only to look at photographs of them without the filter of human arrogance and you could see, anybody could see! Hadn't people who studied the whales and the dolphins been hinting at this for years now? It was there, in the books on my shelves. Weren't there scientists who worked with captive dolphins and came away shaken by hope and dread - hope that we had sapient company here after all, dread that those kindred were doomed to die, unrecognized, at our own hands?

... Let us point out again that there is no such thing as a universal cetacean language but there are linguistic conventions which cover far more interactions than the human utterances of "ahah!" and "wow."

... But if the cetaceans broke down into the whales, the dolphins, the porpoises, and the orcas, and each of these groups broke down into sub-groups, and all those groups had their own mythic mind-sets, then suddenly I was facing the idea of not one cetacean culture but a whole slew of them. I was becoming more and more aware of an enormous enlargement of the world, with many of the complexities of land-based societies existing among the societies of the sea, plus countless unimaginable complexities of their own.

... This won't signify anything in the face of my basic assertion that the whales are sapient but are not angels. These are the same well-meaning people who want to think that all whites have to do is "adopt" the ways and values of the American Indians and white-dominated Western culture will be rescued by the sheer goodness of the noble savage.

... I can't believe that it's better not to know (or have the opportunity to know) what we're dealing with. I can't believe that it's better to go on thinking that we're alone on this poor planet, answerable to no one and nothing for our careless depredations, childish grudges and suicidal greed. Who knows, maybe the recognition of cetaceans as creatures like ourselves might work in the other directions, leading us to be more respectful of the souls incarnate in the bodies of our fellow but "different" humans as well.

—Reviewed by Phoebe Wray